

**WE CLAIM:**

1. An article for measuring external drug transfer to skin surfaces, comprising:

a polyolefin substrate film including at least one of the group consisting of polyethylene and polypropylene, the film having a weight-average molecular weight between about 3 and about 6 kilograms/mole; and

a skin-adhering element attached to the polyolefin substrate film, wherein the article is free of aromatic organic compounds, polyenes, acrylates, esters, waxes, dimethicones and silicone-based compounds.

2. The article of Claim 1, wherein the film has a weight-average molecular weight between about 3 and about 4 kilograms/mole.

3. The article of Claim 1, wherein the polyolefin substrate film comprises a surface texture having a roughness, calculated as an arithmetic sum of all deviations about a best-fit mean plane through topographical surface data, of between about 19 and about 32 microns.

4. The article of Claim 1, wherein the polyolefin substrate film comprises a surface texture having human skin topography.

5. The article of Claim 1, wherein the skin-adhering element comprises an adhesive selected from the group consisting of a polyacrylate ester based hydrogel adhesive, a polymethacrylate ester based hydrogel adhesive, a high solids moisture resistant latex pressure-sensitive adhesive, and a polyalkyloxazoline-reinforced acrylic pressure-sensitive adhesive.

6. The article of Claim 5, wherein the adhesive comprises components each having a minimum molecular weight of at least 1,500 daltons.

7. The article of Claim 5, wherein the adhesive has a boiling point of at least 250° Celsius.

8. The article of Claim 1, wherein the skin-adhering element comprises an electrostatic adhesive.

9. The article of Claim 8, wherein the polyolefin substrate film has a thickness of less than 80 microns.

10. The article of Claim 1, further comprising packaging materials in contact with the polyolefin substrate film, wherein the packaging materials are non-interfering with respect to analysis of the drug being measured.

11. The article of Claim 1, wherein the polyolefin substrate film has a shape selected from the group consisting of triangular, square, circular, oval, rectangular, octagonal; and hexagonal.

12. The article of Claim 1, wherein the polyolefin substrate film has a maximum length of between about 1 centimeter and about 10 centimeters.

13. An article for measuring external drug transfer to skin surfaces, comprising:

a polytetrafluoroethylene substrate film having a weight-average molecular weight between about 35 and about 65 kilograms/mole; and

a skin-adhering element attached to the polytetrafluoroethylene substrate film, wherein the article is free of aromatic organic compounds, polyenes, acrylates, esters, waxes, dimethicones and silicone-based compounds.

14. The article of Claim 13, wherein the film has a weight-average molecular weight between about 45 and about 55 kilograms/mole.

15. The article of Claim 13, wherein the polytetrafluoroethylene substrate film comprises a surface texture having a roughness, calculated as an arithmetic sum of all deviations about a best-fit mean plane through topographical surface data, of between about 19 and about 32 microns.

16. The article of Claim 13, wherein the polytetrafluoroethylene substrate film comprises a surface texture having human skin topography.

17. The article of Claim 13, wherein the skin-adhering element comprises an adhesive selected from the group consisting of a polyacrylate ester based hydrogel adhesive, a polymethacrylate ester based hydrogel adhesive, a high solids moisture resistant latex pressure-sensitive adhesive, and a polyalkyloxazoline-reinforced acrylic pressure-sensitive adhesive.

18. The article of Claim 17, wherein the adhesive has a minimum molecular weight of at least 1,500 daltons.

19. The article of Claim 17, wherein the adhesive has a boiling point of at least 250° Celsius.

20. The article of Claim 13, wherein the skin-adhering element comprises an electrostatic adhesive.

21. The article of Claim 20, wherein the polytetrafluoroethylene substrate film has a thickness of less than 80 microns.

22. The article of Claim 13, further comprising packaging materials in contact with the polytetrafluoroethylene substrate film, wherein the packaging materials are non-interfering with respect to analysis of the drug being measured.

23. The article of Claim 13, wherein the polytetrafluoroethylene substrate film has a shape selected from the group consisting of triangular, square, circular, oval, rectangular, octagonal, and hexagonal.

24. The article of Claim 13, wherein the polytetrafluoroethylene substrate film has a maximum length of between about 1 centimeter and about 10 centimeters.

25. An article for measuring external drug transfer to skin surfaces, comprising:

a substrate including at least one of the group consisting of metallic foil film, metallized film, poly(methyl methacrylate), poly(vinyl alcohol), poly(ethylene oxide), poly(ethylene terephthalate), polycaprolactam, poly(hexamethylene adipamide), poly( $\alpha$ -1,6-D-glucose), polydimethylsiloxanes, and poly(cis-1,4-isoprene); and

a skin-adhering element attached to the substrate, wherein the article is free of aromatic organic compounds, polyenes, acrylates, esters, waxes, dimethicones and silicone-based compounds.

26. The article of Claim 25, wherein the substrate comprises a surface texture having a roughness, calculated as an arithmetic sum of all deviations about a best-fit mean plane through topographical surface data, of between about 19 and about 32 microns.

27. The article of Claim 25, wherein the substrate comprises a surface texture having human skin topography.

28. The article of Claim 25, wherein the skin-adhering element comprises an adhesive selected from the group consisting of a polyacrylate ester based hydrogel adhesive, a polymethacrylate ester based hydrogel adhesive, a high solids moisture resistant latex pressure-sensitive adhesive, and a polyalkyloxazoline-reinforced acrylic pressure-sensitive adhesive.

29. The article of Claim 28, wherein the adhesive has a minimum molecular weight of at least 1,500 daltons.

30. The article of Claim 28, wherein the adhesive has a boiling point of at least 250° Celsius.

31. The article of Claim 25, wherein the skin-adhering element comprises an electrostatic adhesive.

32. The article of Claim 31, wherein the substrate has a thickness of less than 80 microns.

33. The article of Claim 25, further comprising packaging materials in contact with the substrate, wherein the packaging materials are non-interfering with respect to analysis of the drug being measured.

34. The article of Claim 25, wherein the substrate has a shape selected from the group consisting of triangular, square, circular, oval, rectangular, octagonal, and hexagonal.

35. The article of Claim 25, wherein the substrate has a maximum length of between about 1 centimeter and about 10 centimeters.